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Defense-Related Uranium Mine Reconciliation Process

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Reconciliation Introduction

- A “sleuthing” process whereby the location and production data for each mine identified for the Defense-Related Uranium Mine (DRUM) program is evaluated and corrected as necessary
- A DRUM is a mine that sold ore to the U.S. Atomic Energy Commission (AEC) between 1948 and 1970
- DRUM sites range from small prospects to large mines, some of which continued operation after the DRUM period

Reconciliation Background

- AEC sources of information on DRUM locations and production
 - Summary of Uranium Production, 1948–1967
 - Lists 4,225 DRUM sites
 - In 2013, LM identification (ID) numbers assigned
 - Mine locations derived from listings in state and federal databases
 - Uranium Ore Production Report, 1947–1970
 - Lists production by state and county for each property
 - “The Shoe Box Report”
 - Tabulation of uranium ore produced under the AEC program from 1948 to 1970
 - Lists production of property by year and operator

Early Reconciliation Work

- DRUM database established in late 2014
- Early reconciliation work:
 - Grants Mineral Belt, New Mexico (2015)
 - Southeast Utah districts and pilot mines (2016)
- Expanded reconciliation team focused on specific areas and districts addressed in Field Operation Plans (FOPs) in 2017
 - White, Fry, and Red Canyons, Utah
 - Thompson District, Utah
 - State of New Mexico
 - U.S. Bureau of Land Management Uncompahgre Field Office – Long Park, Club Mesa, Eagle Basin, Bitter Creek, Colorado

Present and Planned Reconciliation Work

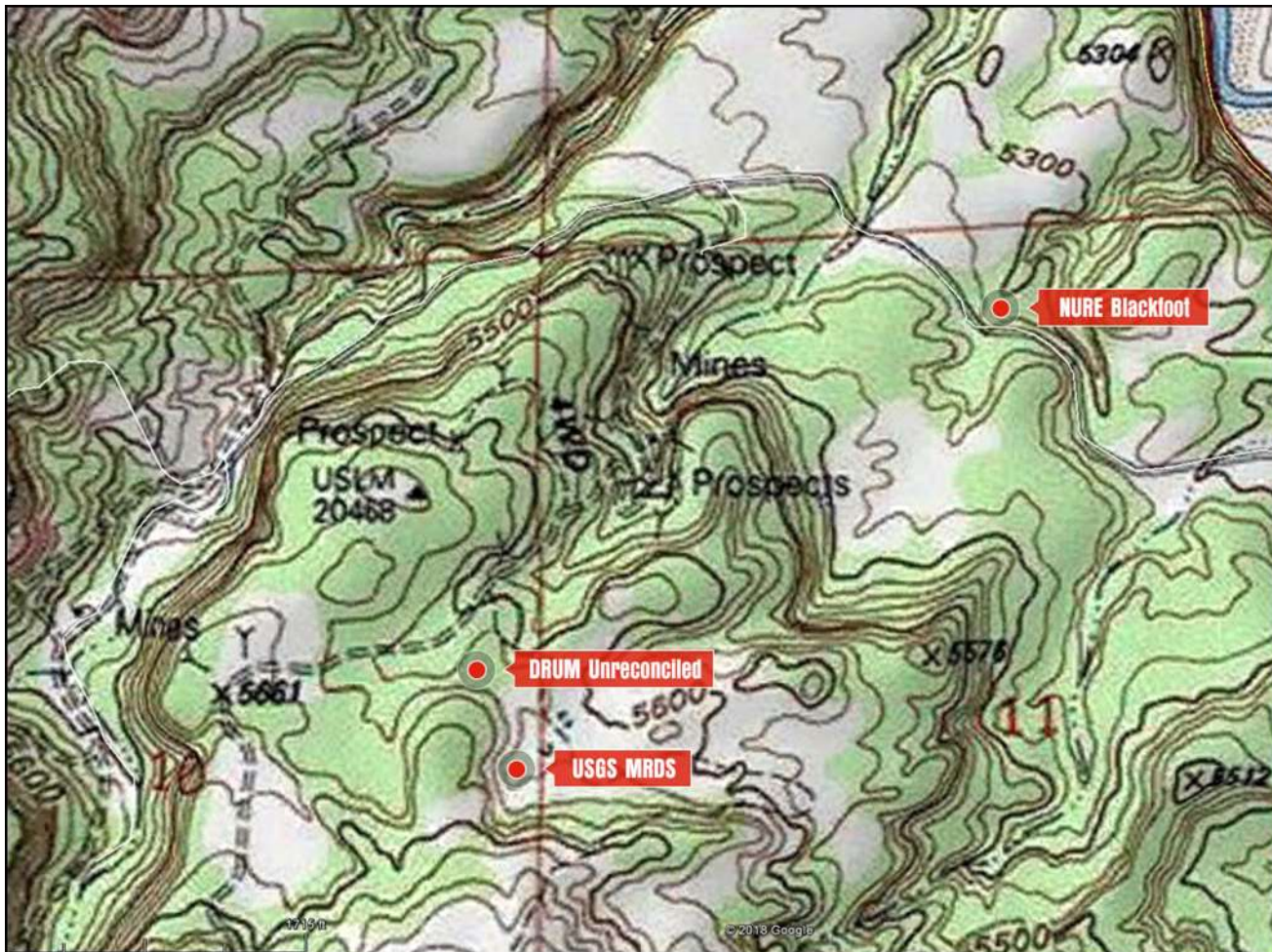
- Approximately 1,500 DRUM sites have been reconciled to date
- Reconciliation team focused on the following areas and districts for 2018 field work:
 - State of Colorado, outside the Uravan Mineral Belt
 - State of Wyoming
 - San Rafael mining district, Utah
 - Manti-La Sal National Forest, Utah
- Planned areas for future field work:
 - Gateway mining district, Colorado
 - Moab mining district, Utah
 - Henry Mountains mining district, Utah
 - Remaining mines in Uravan Mineral Belt, Colorado and Utah

Reconciliation Process

- Reconciliation team and DOE define a project based on a priority area or mining district
- Relevant mine names and LM IDs are identified from the DRUM database in the project area
- Area- and mine-specific research is conducted to gather pertinent maps, reports, and historic documents
 - AEC Allocation and Bonus case maps and files from the National Archives and Records Administration (NARA)
 - Uranium mine and occurrence data from the National Uranium Resource Evaluation (NURE) Reports
 - Defense Minerals Exploration Administration (DMEA)
 - Other references used include data from AEC records, U.S. Geological Survey (USGS), and State Geological Surveys, and private/mining company map collections

Why Is Reconciliation Needed?

- Locations vary in accuracy from existing databases



Example of AEC Production Records

- Summary of Uranium Ore Production Records 1948–1967

SUMMARY OF URANIUM PRODUCTION BY DISTRICT, LOCALITY, AND PROPERTY.						
DISTRICT - URAVAN						
LOCALITY - CLUB MESA						
CLAIM	CLAIM NAME	STATE	COUNTY	TONS OF ORE	LBS OF U3O8	AVE. GRADE, PCT U3O8.
015040	ANNEX	5	43	0.52000000E 01	0.14700000E 02	0.141
037300	BEAVER	5	43	0.62157999E 04	0.28916899E 05	0.233
046002	BETTER BE	5	43	0.63769999E 03	0.24908999E 04	0.195
046007	BETTER BE	5	43	0.53304997E 04	0.29758498E 05	0.279
059690	BIG SHOT	5	43	0.42999999E 01	0.35700000E 02	0.415
079430	BLACKFOOT	5	43	0.29422999E 04	0.14358199E 05	0.245
118800	BUCKSHOT	5	43	0.93774992E 04	0.41169997E 05	0.220
421590	IRENE	5	43	0.24770000E 03	0.48640000E 04	0.982
423500	J M	5	43	0.27335999E 04	0.10002000E 05	0.183
550641	MARGIE GROUP	5	43	0.12663000E 04	0.12410000E 05	0.490

SUMMARY OF URANIUM PRODUCTION BY DISTRICT, LOCALITY, AND PROPERTY.						
DISTRICT - URAVAN						
LOCALITY - EAGLE BASIN						
CLAIM	CLAIM NAME	STATE	COUNTY	TONS OF ORE	LBS OF U3O8	AVE. GRADE, PCT U3O8.
079430	BLACKFOOT	5	43	0.32161998E 04	0.19273998E 05	0.300
126432	BUTTERFLY	5	43	0.10170000E 03	0.23680000E 03	0.116
190458	COLUMBUS	5	43	0.18500000E 02	0.37799999E 02	0.102
223250	CUE BALL	5	43	0.60299999E 02	0.41100000E 03	0.341
279026	EIGHT BALL	5	43	0.15400000E 03	0.41790000E 03	0.136
279180	EIGHT BALL	5	43	0.42780000E 03	0.23534000E 04	0.275
296502	FAERY QUEEN	5	43	0.82179999E 03	0.39554999E 04	0.241

Examples of Regional Maps and Occurrence Reports (continued)

- NURE reports

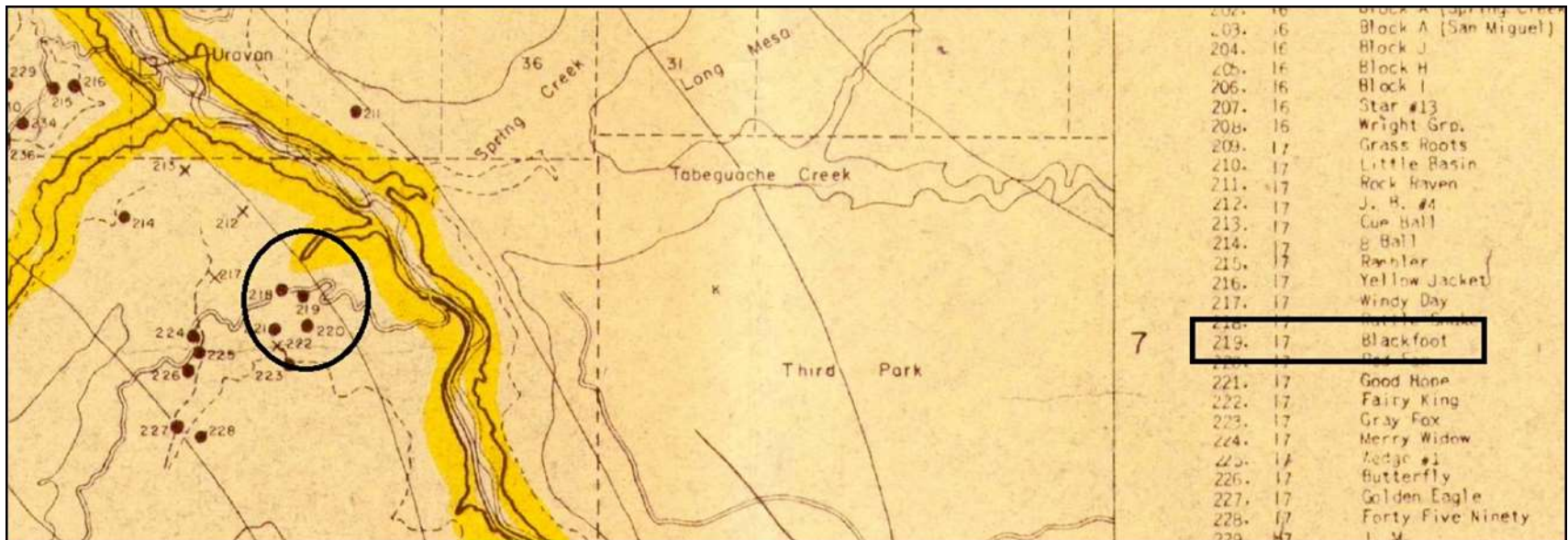
Appendix A:--Uranium Occurrences in the Moab Quadrangle--continued

Occurrence ¹ no.	Name	Location	Host rock Formation/member	Deposit class	Production ²	Reference ³
124	Black Hawk	S27 T49N R18W 38°09'15"N 108°53'26"W	Morrison/Salt Wash	Sandstone	a	TEM-350
125	Black Jack	S02 T45N R18W 38°11'13"N 108°49'33"W	Morrison/Salt Wash	Sandstone	a	TEM-268 A
126	Black Point	S13 T46N R18W 38°14'19"N 108°47'36"W	Morrison/Brushy Basin	Sandstone	a	TEM-268 A
127	Black Prince	S28 T46N R19W 38°12'22"N 108°58'21"W	Morrison/Salt Wash	Sandstone	a	TEM-458
128	Black Rock	S23 T48N R18W 38°24'37"N 108°48'36"W	Morrison/Salt Wash	Sandstone	a	TEM-350
129	Black Tom	S20 T46N R17W 38°13'58"N 108°45'35"W	Morrison/Salt Wash	Sandstone	b	TEM-268 A
130*	Blackburn	S21 T46N R17W 38°13'40"N 108°46'00"W	Morrison/Salt Wash	Sandstone	b	TEM-268 A
131	Blackfoot Rattlesnake	S11 T47N R17W 38°20'50"N 108°42'50"W	Morrison/Salt Wash	Sandstone	b	TEM-347
132	Blaze Mesa	S25 T47N R17W 38°18'26"N 108°45'56"W	Morrison/Salt Wash	Sandstone	a	TEM-267
133	Blondy	S26 T48N R18W 38°23'00"N 108°48'45"W	Morrison/Salt Wash	Sandstone	a	RMOCB
134	Blue Bell	S35 T47N R17W 38°16'36"N 108°43'00"W	Morrison/Salt Wash	Sandstone	b	TEM-347
135	Bluebird Bluebird Dump	S25 T48N R18W 38°23'49"N 108°47'36"W	Morrison/Salt Wash	Sandstone	a	TEM-350
136	Blue Atkin Mesa	S21 T48N R17W 38°23'25"N 108°44'51"W				RMOCB

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Examples of Regional Maps and Occurrence Reports (continued)

- Uranium-vanadium deposits of the Uravan Mineral Belt, 1957



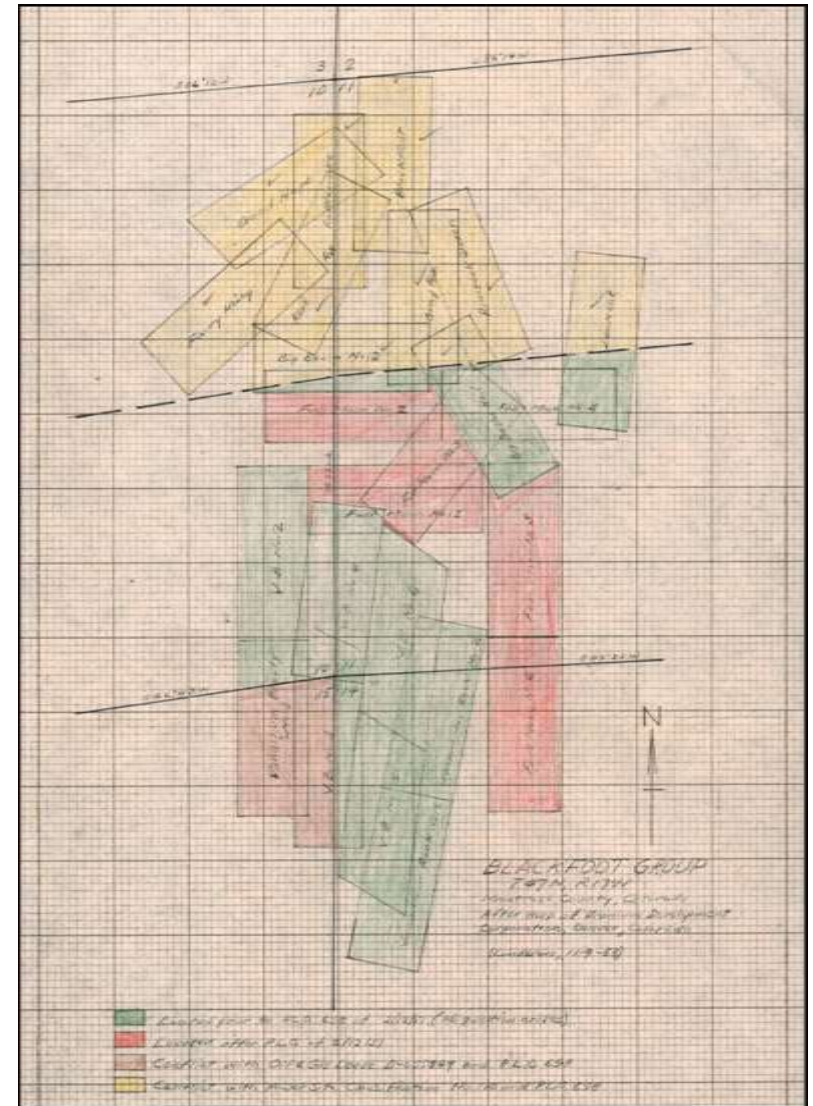
Examples of Regional Maps and Occurrence Reports (continued)

- AEC 7.5 Minute Quadrangle Claim Maps – Uravan (TEM-347)



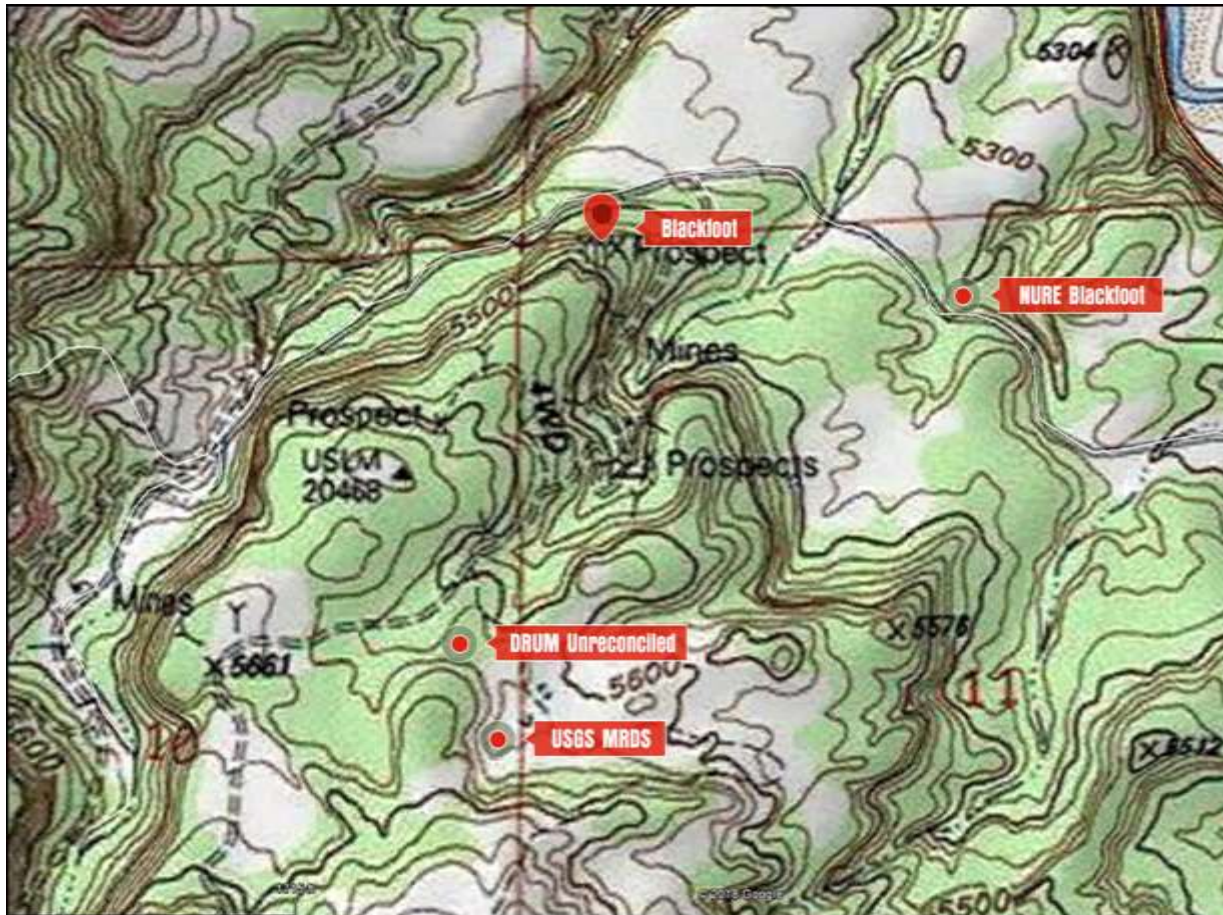
AEC Records in the National Archives at Denver

- DRUM-era maps and correspondence between mining companies and the AEC
- Two record series
 - Allocation case files
 - Certification bonus case files
- We collected approximately 3,700 DRUM-specific maps from the National Archives



Why Is Reconciliation Needed?

- Essential first step in providing accurate location data to DRUM field teams for verification and validation work



DRUM Field Team Inventory of the Blackfoot Mine



Questions?